

Work Order ID 148512

July 04, 2016 10:17:37 AM

148512

Page 1

Item ID: D117-762-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Replacement Skidtube
Start Date: 7/4/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 7/28/2016 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: SLA Date: 7/4/16 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D3582	C

100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile & type labels per PPP D117-762-041	CHG002							

DAS
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V/A

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Work Order ID 148512

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Item ID: D117-762-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Replacement Skidtube

Stop ***NS2***

Start Date: 7/4/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/28/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Skidtubes	0.00							
130									
Skidtubes	Memo	0.20							
Skidtubes	1-Cut Aft end using DT8185								
	2-Deburr ends								
	3-Drill Aft Cap holes using DT8678 *** OPEN AFT CAP HOLE TO .187" ***								
	4-Locate DT 8973 from aft cap holes & Drill Ground wire hole on top of Tube.								
	5-Install 3/16 cleco in Ground wire hole ,then drill all X-Bolt holes using 3/16" drill.								
	6-Drill pilot holes for wearplates using DT8900								
	7-Open wearplate holes to Ø19/64" (0.297") as per Dwg D3582.								
	8- open ground wear holes to 0.391" as per section B-B								
	9-Open Aft Cap holes using .209" drill.								
	10-Drill pilot holes for section D-D and E-E. Holes must be laid out by hand. Mark out Center line and make sure that 6.65 and 5.906 measurements are respected. Double check before drilling, do not open holes to finish size.								

BE 16-07-04
BE 16-07-05

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 148512

July 04, 2016 10:17:37 AM

148512

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Item ID: D117-762-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Replacement Skidtube

Start Date: 7/4/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/28/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	Chemical Conversion Coat per QSI005 4.1	0.00	<i>AK 16-7-6-MG</i>						
170									
HandFinish	Memo	0.07							
Hand Finishing									
180	QC7-Inspect Chemical Conversion Coat	0.00							
180									
QC	Memo	0.00				<i>1</i>	<i>0</i>	<i>1607-07</i>	
Quality Control									

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DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By _____		
							Lead hand / Supervisor Approval Verification _____		
							QC / QA Coordinator Approval _____		

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐	☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐
Design ☐	☐	Operator ☐	☐	Bending ☐	☐	Set-up ☐	☐
Doc/Data ☐	☐	Offset/Setup ☐	☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐
Equip/Tooling ☐	☐	Supplier ☐	☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐
Handling/Pre ☐	☐	Training ☐	☐	Crimp/Kink/Ripple/Wave ☐	☐	Inspection Incomplete/Unqualified ☐	☐
Material ☐	☐	Use for Testing ☐	☐	Cuffs ☐	☐	Contamination ☐	☐
Internal Transport ☐	☐	Poor Information ☐	☐	Crushing ☐	☐	Countersink ☐	☐
Tribal Knowledge ☐	☐	Rushing ☐	☐	Heat Treat ☐	☐	Cut Too Short ☐	☐
LOA ☐	☐	Product Improvement ☐	☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐
Substation ☐	☐	Process Improvement ☐	☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐
Past Expiry Date ☐	☐	Manufacturing Process ☐	☐	OTHER : 			
Misidentified ☐	☐	Past Due ☐	☐				

Work Order ID 148512

July 04, 2016 10:17:37 AM

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Item ID: D117-762-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Replacement Skidtube

Stop ***NS2***

Start Date: 7/4/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/28/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	Skidtubes	0.00							
190									
Skidtubes	Memo	0.15							
Skidtubes	1-Open X-Bolt holes to finish size as per Dwg D3582, all sections								
	2-Counter Sink X-BOLT holes as per Dwg D3582								
	3-Deburr and blow out chips from inside of tube, prep. tube for welding								
	4-Bond web as per Dwg D3582 & OSI015								
	A/R 241 Sike Flex Batch: 134743								
	Exp Date: 16-12-8								
	5-Weld x-bolt spacers(D2973) as per Dwg D3582 section B-B.								
	A/R AL ROD Batch: m 13502								
	6-Grind welds flush								
200	QC10- Inspect visual per QSI004- ground welds	0.00							
200									
QC	Memo	0.00							
Quality Control									

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9-8916-7-7
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16-07-11

① 16-07-14

DAS
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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : _____					

Work Order ID 148512

July 04, 2016 10:17:37 AM

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Item ID: D117-762-041

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Replacement Skidtube

Start Date: 7/4/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 7/28/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	QC5- Inspect part completeness to step on W/O	0.00							
210									
QC	Memo	0.00							DAS 9 9-89
Quality Control									
215	Pressure Wash per QSI005 4.3	0.00							
215									
HandFinish	Memo	0.07							DAS 34 9-89
Hand Finishing	Touch-up alodine as per QSI								20160718 BEB
220	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
220									
Powdercoat	Memo	0.03							
Powder Coating	START TIME 2:00 OVEN TEMPERATURE: 320° FINISH TIME: 2:30								1 16-07-28. DAS 34 9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
				Completed By					
				Lead hand / Supervisor Approval Verification					
				QC / QA Coordinator Approval					

Root Cause			FAULT CATEGORY					
Environment ☐		No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐		Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐		Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐		Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐		Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐		Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐		Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐		Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐		Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐		Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐		Manufacturing Process ☐	OTHER : _____					
Misidentified ☐		Past Due ☐						

Work Order ID 148512

July 04, 2016 10:17:37 AM

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Item ID: D117-762-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Replacement Skidtube

Start Date: 7/4/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/28/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

NR1

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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230

QC3- Inspect Part Finish

0.00

230

QC

Memo

0.00

Quality Control

1x of all 16/08/29

DAS
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9-89

250

HandFinishing

0.00

250

HandFinish

Memo

0.26

Hand Finishing

1-Inspect for Foreign objects

2-Install Aft cap as per Dwg D3582, Detail "C"

A/R 241 Sika Flex Batch: M135376Exp Date: 16/09

3-Install Wearplates as per Dwg D3582,

Note:Install Bolt and washer on Ground Wire inserts on top of tube see section D-D of dwg D3582

*****Do not install bolts where indicated on Dwg(Note #6)*****

A/R 241 Sika Flex Batch: M135376Exp Date: 16/094- Wing Walk as per Dwg D3582 and QSI 005 4.4 M134942

11 of all 16/08/29

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 148512

July 04, 2016 10:17:37 AM

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Item ID: D117-762-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Replacement Skidtube

Start Date: 7/4/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/28/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
260	QC5- Inspect part completeness to step on W/O	0.00							
260									
QC	Memo	0.00							DAS 38 9-89
Quality Control									AUG 30 2016
270		0.00							
270	Packaging								
Packaging	Memo	0.00							DAS 28 9-89
Packaging	Identify and pack for shipping as per PPP D117-762-041 Location :FG081								SEP 12 2016
280	QC21- Final Inspection - Work Order Release	0.00							
280									
QC	Memo	0.02							DAS 21 9-89
Quality Control									SEP 13 2016

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SEP 13 2016

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐								
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval					
Description Work Order Deviation				Disposition				Completed By				
2A1J 82 80 -								Lead hand / Supervisor Approval Verification				
												QC / QA Coordinator Approval
Root Cause		FAULT CATEGORY										
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐							
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐							
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐							
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐							
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐							
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐							
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐							
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐							
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐							
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐							
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :										
Misidentified ☐	Past Due ☐											

Picklist Print

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Page 1

Work Order ID: 148512

148512

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A07.06.11New Issue EC
IPP Rev:B 08-02-22 change to revA as per dwg DD verF by:EC IPP REV:C
15.06.11 AS PER CHG002 DD VERF:JLM IPP REV:D 16.02.05
DWG REV.C (ecn16-514) DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D3582-1-BENT

Manufactured

No

130

Each

4.0000

1

1

D3582-1-BENT

Skidtube Assembly BK117

**

BE16-07-04

Location

Loc Qty

Loc Code

LG002

4

143511

4

D2964

Manufactured

No

140

Each

12.0000

1

1

D2964

Cap

**

BE16-07-05

Location

Loc Qty

Loc Code

LG001

12

144041

12

D2971

Manufactured

No

190

Each

13.0000

1

1

D2971

Cross Bolt Spacer

**

BE16-07-11

Location

Loc Qty

Loc Code

LG001

13

108778

13

D2965

Manufactured

No

250

Each

68.0000

1

1

D2965

Cap

**

BE 16/08/29

Location

Loc Qty

Loc Code

FP001

68

127852

68

X1

Picklist Print

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Work Order ID: 148512

148512

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

D2973

Manufactured No

190 Each

58.0000

2 2

D2973

Cross Bolt Spacer

**

BE1607-11

Location

Loc Qty

Loc Code

LG001

58

123939

2

144627

56

2

D3584-1

Manufactured No

190 Each

1.0000

1 1

D3584-1

Web

**

16-7-7 MG

Location

Loc Qty

Loc Code

LG002

1

145645

1

143512

1

D3662-3

Manufactured No

190 Each

80.0000

1 1

D3662-3

Crossbolt Spacer

**

BE1607-11

Location

Loc Qty

Loc Code

LG001

80

105725

26

71026

7

81606

47

1

D3662-1

Manufactured No

190 Each

35.0000

3 3

D3662-1

Crossbolt Spacer

**

BE1607-11

Location

Loc Qty

Loc Code

LG001

35

143517

35

3

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Picklist Print

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Work Order ID: 148512

148512

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

ALS4-1032-130 AEIS4-1032-130 Purchased No

Each 2,938.000 36

AI S4-1032-130

Rivnut

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
CCK005	1596	
M134502	1596	
FP001	352	
M133077	122	
<u>M134502</u>	230	X36
ST556	990	
M134502	990	

ALS4-428-165 Purchased No

Each 61.0000 2

AI S4-428-165

INSERT

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FG	10	
117769	10	
FP001	51	
<u>117769</u>	51	X2

D3508-3 Manufactured No

250 Each 8.0000 1

D3508-3

Wearplate Fwd Center

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP002	8	
<u>144501</u>	8	X1

D3508-9 Manufactured No

250 Each 4.0000 1

D3508-9

Wearplate Fwd

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP002	4	
142291	4	X1

B148663

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Picklist Print

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Work Order ID: 148512

148512

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

D3558-3

Manufactured No

250

Each

31.0000

1

1

D3558-3

Gasket Center Fwd

del 16/08/29

Location

Loc Qty

Loc Code

FG

1

89649

1

FP001

30

144377

30

D3558-9

Manufactured No

250

Each

5.0000

1

1

D3558-9

Gasket Fwd

del 16/08/29

Location

Loc Qty

Loc Code

FG

1

80340

1

FP001

4

138443

4

D3558-11

Manufactured No

250

Each

5.0000

1

1

D3558-11

Gasket Aft Center

del 16/08/29

Location

Loc Qty

Loc Code

FG

1

80339

1

FP001

4

138403

4

Picklist Print

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Work Order ID: 148512

148512

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

D3558-13

Manufactured No

250

Each

18.0000

1

1

D3558-13

Gasket Aft

**

ll 16/08/29

Location

Loc Qty

Loc Code

FG

1

82380

1

FP001

17

138669

17

D3508-11

Manufactured No

250

Each

4.0000

1

1

D3508-11

Wearplate Aft Center

**

ll 16/08/29

Location

Loc Qty

Loc Code

FP002

4

138044

4

B148603

D3508-13

Manufactured No

250

Each

25.0000

1

1

D3508-13

Wearplate Aft

**

ll 16/08/29

Location

Loc Qty

Loc Code

FP001

25

143628

25

Picklist Print

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Work Order ID: 148512

148512

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0332J

Purchased

No

250

Each

1,964.000

2

2

NAS1149D0332.J

all 16/08/29

Washer

Location

Loc Qty

Loc Code

CA

6

m129682

6

GA

987

m135046

987

ST260a

564

m134848

564

ST264

407

m134502

16

m134738

391

x2

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Parent Item: D117-762-041

Parent Item Name: Replacement Skidtube

148512

D117-762-041

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

AN3C4A

Purchased

No

250

Each

1,859.000

28

28

AN3C4A

Bolt

16/09/24

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FG	20	
122814	20	
FP001	333	
M133440	7	
M134396	41	
M134509	6	
M134606	29	
M134676	44	
M134762	206	
OVER002	1400	
M134861	200	
<u>M135058</u>	1200	X28
ST350	106	
M131420	6	
M132317	3	
M134134	18	
M134396	79	

Picklist Print

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Work Order ID: 148512

148512

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

AN3C5A

Purchased

No

250

Each

1,188.000

2

2

AN3C5A

Bolt

**

Handwritten: M 160825

Location

Loc Qty

Loc Code

FG

5

122800

5

M1135470

x2

FP001

488

M134502

488

OVER002

300

M134955

300

ST350

395

M133234

1

M134676

394

NAS1149D0416J

Purchased

No

250

Each

3,973.000

2

2

NAS1149D0416.J

WASHER

**

Handwritten: M 160825

Location

Loc Qty

Loc Code

GA

119

m131511

119

ST260a

1984

m131511

1984

ST264

1870

m131511

1870

x2

Picklist Print

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Work Order ID: 148512

148512

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 7/4/2016

Required Date: 7/28/2016

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0332R

Purchased

No

250

Each

5,434.000

28

28

NAS1149C0332R

del 16/08/29

WASHER

Location

Loc Qty

Loc Code

FP001

1504

m132930

1004

m134073

128

m134962

372

GA

141

m133284

141

ST266

3789

m134736

1789

m135046

2000

x29

AN4-4A

Purchased

No

250

Each

142.0000

2

2

AN4-4A

del 16/08/29

BOLT

Location

Loc Qty

Loc Code

FP001

2

m125709

2

ST346

140

m129390

140

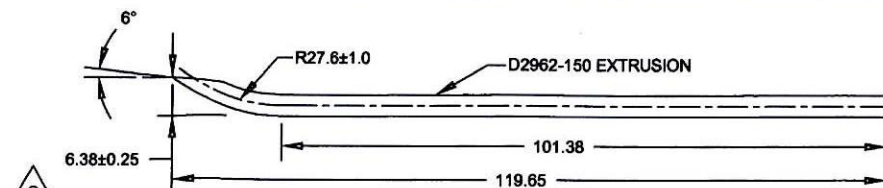
x2

PARTS LIST FOR D3582-041 SKIDTUBE ASSEMBLY

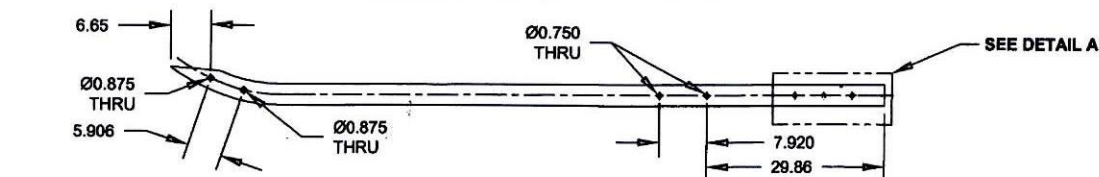
Qty	Part Number	Description
X	D3582-041	SKIDTUBE ASSEMBLY
1	D2962-150	EXTRUSION
1	D2964	CAP
1	D2965	CAP
1	D2971	CROSS BOLT SPACER
2	D2973	CROSS BOLT SPACER
1	D3508-3	WEARPLATE
1	D3508-9	WEARPLATE
1	D3508-11	WEARPLATE
1	D3508-13	WEARPLATE
1	D3558-3	GASKET
1	D3558-9	GASKET
1	D3558-11	GASKET
1	D3558-13	GASKET
1	D3584-1	WEB
3	D3662-1	CROSS BOLT SPACER
1	D3662-3	CROSS BOLT SPACER
36	AELS-1032-130	INSERT
2	ALS7-428-165	INSERT
28	AN3C4A	BOLT
2	AN3-5A	BOLT
2	AN4-4A	BOLT
28	NAS1149C0332R	WASHER (AN960C10L)
2	NAS1149D0332J	WASHER (AN960JD10L)
2	NAS1149D0416J	WASHER (AN960JD416L)

NOTES:

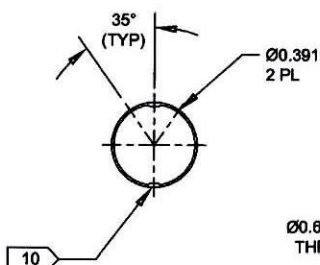
- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER QSI 005 4.1 PRIOR TO INSERTING D3584-1 WEB. POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3. ANTI-SKID PAINT AS INDICATED TO 1.00 ABOVE CENTER LINE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 17.5 lbs
- 8) WELDING: PER DART QSI 004.
- 9) INSERT D3584-1 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- 10) USE DART DRILL TEMPLATE DT8900 TO LOCATE AND DRILL Ø0.297 HOLES (36 PLACES) FOR WEARSHOE INSERTS. INSTALL AELS-1032-130 PER SECTION G-G (36 PLACES) AFTER FINISH. SEAL WEARPLATE BOLTS WITH SIKAFLEX-241/-291.
- 11) DO NOT INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS IN INDICATED LOCATIONS.



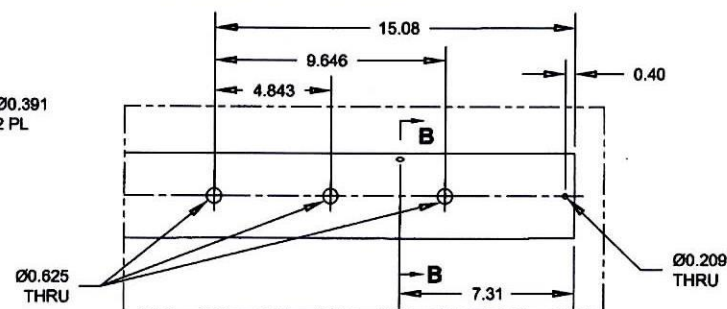
D3582-1 BENDING AND CUTTING DETAIL



D3582-1 DRILLING DETAIL



SECTION B-B
SCALE 5X

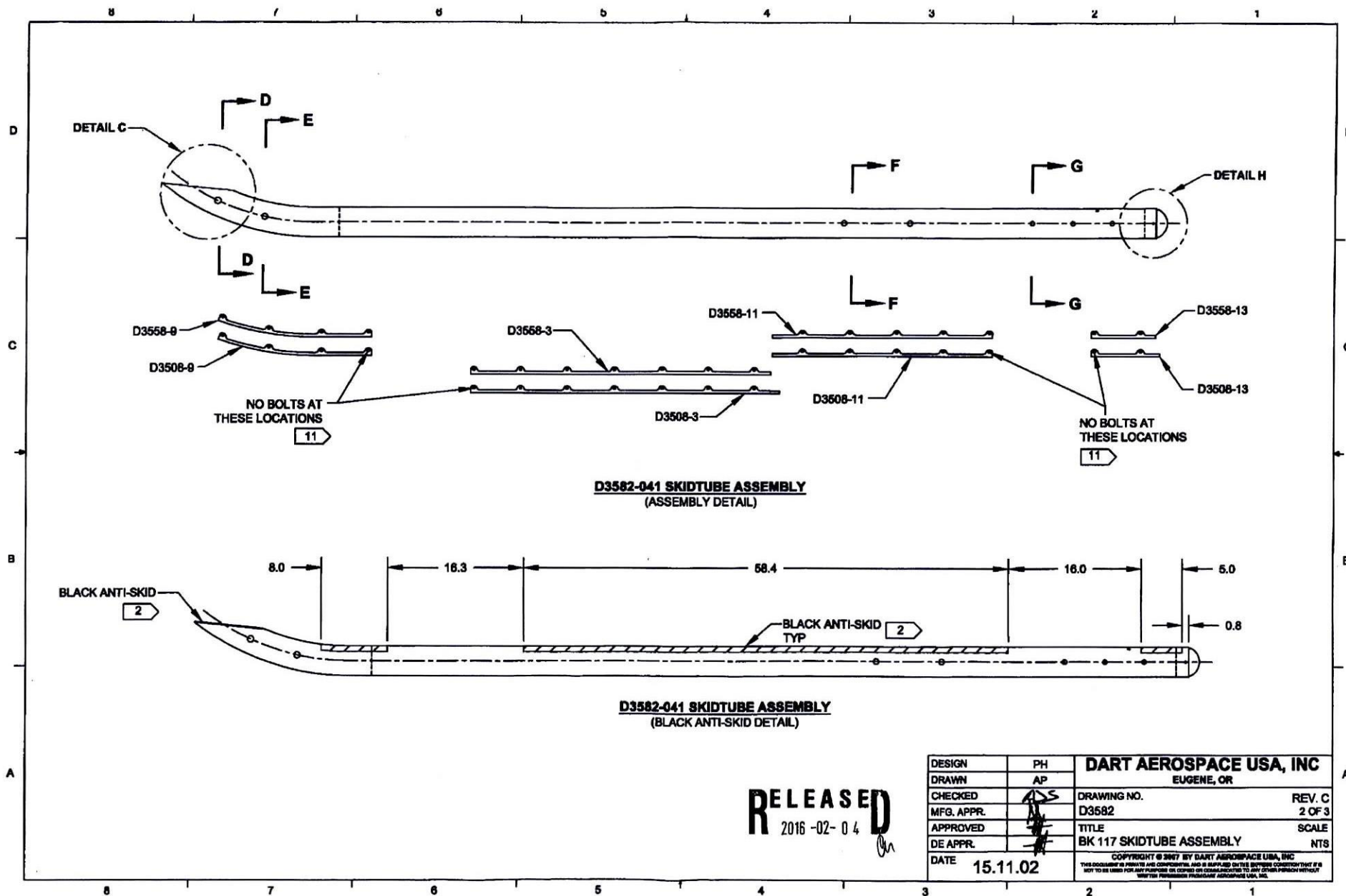


DETAIL A
SCALE 5X

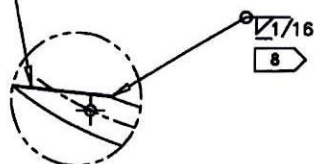
C	D3492 PLUG ASSEMBLIES REMOVED. REFORMAT NOTES SHT 1	AP	15.11.02
B	29.86 WAS 29.87 (ZN C2-1), INCORPORATED DEO D3582-A-1 (ZN D5-1), FORMAT TO CURRENT STD	RF	15.02.20
A	NEW ISSUE	PH	07.08.08
REV.	DESCRIPTION		BY DATE
DESIGN	PH	DART AEROSPACE USA, INC EUGENE, OR	
DRAWN	AP		
CHECKED	DB		
MFG. APPR.	DB		
APPROVED	DB		
DE APPR.	#	DRAWING NO. D3582 TITLE BK 117 SKIDTUBE ASSEMBLY	
DATE	15.11.02	REV. C 1 OF 3 SCALE NTS	
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RELEASED
2016-02-04
EEN 16-514

148512
3x 7/4/16

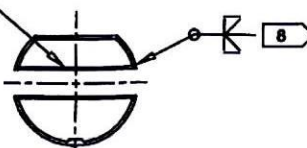


D2964 CAP
(GRIND FLUSH)



DETAIL C

D2971 SPACER

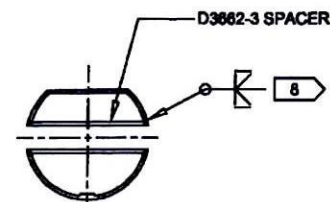


SECTION D-D
SCALE 3X

SECTION D-D NOTES

AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D2971 SPACER
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.750 DRILL TO REMOVE SPILL OVER



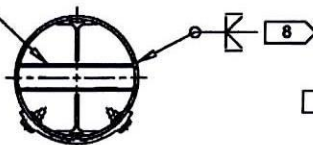
SECTION E-E
SCALE 3X

SECTION E-E NOTES

AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D3662-3 SPACER
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.672 DRILL TO REMOVE SPILL OVER

D2973 SPACER
2 PL



SECTION F-F
SCALE 3X

SECTION F-F NOTES

AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D2973 SPACER (2 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.625 DRILL TO REMOVE SPILL OVER

D3584-1 WEB
REF

D3662-1 SPACER
3 PL

10 AFTER FINISH, INSTALL
AELS-1032-130
INSERT 36 PL

AN3C4A BOLT (1)
NAS1149C0332R WASHER (1)
28 PL



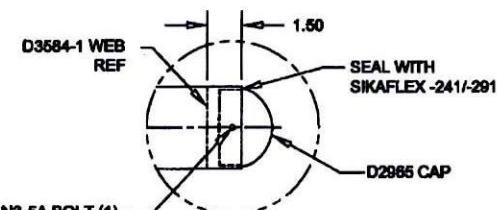
SECTION G-G
SCALE 3X

SECTION G-G NOTES

AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D3662-1 SPACER (3 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.615 DRILL TO REMOVE SPILL OVER

AFTER FINISH, INSTALL
ALS7-428-165 INSERT (1)
AN4-4A BOLT (1)
NAS1149D0416J WASHER (1)
2 PL



DETAIL H

AN3-6A BOLT (1)
NAS1149D0332J WASHER (1)
2 PL

RELEASED
2016-02-04

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	RF	EUGENE, OR	
CHECKED	AS	DRAWING NO.	REV. C
MFG. APPR.	AS	D3582	3 OF 3
APPROVED	AS	TITLE	SCALE
DE APPR.	AS	BK 117 SKIDTUBE ASSEMBLY	NTS
DATE	15.11.02	COPYRIGHT © 2007 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PREPARED FOR THE U.S. AIR FORCE BY THE U.S. AIR FORCE RESEARCH AND DEVELOPMENT COMMAND AND IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	